REMARKS

Summary of Amendments

Claims 1 and 15 have been amended to include new elements and limitations, including the limitation of claim 6. Claim 6 has therefore been cancelled. Accordingly, claims 1-5 and 7-15 are pending.

Support for Amendments

No new matter has been added. Support for the recitation in claims 1 and 15 of a shaft of lower thermal conductivity than that of the susceptor ceramic can be found in paragraphs [0069] and [0071] of the specification as filed. Support for the claim 1 and 15 limitation that the ceramic susceptor frontside (wafer-carrying side) has a planarity of 0.5 mm or less can be found in paragraph [0067] of the specification.

Rejections under 35 U.S.C. § 103

Claims 1-5 and 7-15; Burkhart et al. '283 in view of Ito WO '717 or Kawanabe et al. '557, and Yamaguchi et al. '811

Claims 1-5 and 7-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. No. 6,469,283 to Burkhart et al. in view of Int'l. Pat. App. Pub. No. WO 02/084717 (to which EP Pat. App. Pub. No. 1 391 919 is an English counterpart) to Ito, or U.S. Pat. No. 6,133,557 to Kawanabe et al., and further in view of U.S. Patent No. 6,376,811 to Yamaguchi et al., (all of which are references cited in the final Office action prior to the present continued examination of the instant application).

Applicants submit that as set forth in the specification, the present invention is based on the concept that in designing the pattern for a resistive-heating-element circuit, as against the conventional situation in which the position of the lead circuit and the electrodes had to be taken into consideration, forming the lead circuit and the electrodes on a surface different from that of the resistive heating element enables the susceptor temperature uniformity to be enhanced by creating a suitable resistive-heating-element circuit pattern irrespective of the location of the lead circuit and the electrodes.

This concept is unique to the present invention in that the concept is not presented in any of the cited references.

Claim 6; Burkhart et al. '283 in view of in view of Ito WO '717, Kawanabe et al. '557, and Yamaguchi et al. '811 and further in view of Kojima et al. '056 or Nozaki et al. '681

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Burkhart et al. in view of Ito Kawanabe et al. and Yamaguchi et al. as applied under this section to claims 1-5 and 7-15, and further in view of U.S. Patent No. 4,733,056 to Kojima et al. or U.S. Patent No. 5,264,681 to Nozaki et al. (Each of these latter two references was cited in the previous Office action.)

Claim 6 has been canceled by the present amendment.

The lead-circuit limitation previously recited in claim 6 has been added to claims 1 and 15. As set forth in the specification, making the resistance of the lead circuit smaller is to minimize the emission of heat from the lead circuit, thereby preventing the lead circuit temperature from rising and influencing the susceptor temperature uniformity.

Kojima et al. and Nozaki et al. do mention resistance of lead lines being smaller than that of the resistive heating element, yet mention nothing at all concerning the relationship to temperature uniformity, which is an object of the present invention, nor do these references have any relation to semiconductor fabrication devices and liquid-crystal fabrication devices, which are the technical field of the present invention.

Applicants respectfully assert that lacking the above-described concept for improving susceptor temperature uniformity, unique to the present invention, would be prohibitive of combing the structure, as a feature of the present invention, in which the lead circuit and the electrodes are formed on a surface different from that of the resistive heating element, and the claim amendment discussed above to arrive at the present invention.

The object of the amendments made to claims 1 and 15 to recite a shaft of lower thermal conductivity than that of the susceptor ceramic, and to recite that the ceramic susceptor frontside (wafer-carrying side) has a planarity of 0.5 mm or less are, likewise as with the amendment concerning the lead circuit resistance, is to prevent degradation of the susceptor temperature uniformity, as is explained in the present specification.

Again, Applicants respectfully assert that lacking the above-described concept for improving susceptor temperature uniformity, unique to the present invention, would be prohibitive of combing the structure, as a feature of the present invention, in which the lead circuit and the electrodes are formed on a surface different from that of the resistive heating element, with the shaft thermal conductivity and

susceptor frontside planarity limitations to arrive at the present invention.

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Further, it is respectfully submitted that the Office has not made a *prima facie* case of obviousness in rejecting the claims under § 103(a).

In U.S. patent practice, it is well established that to combine the teachings of prior art references in order reject claims under § 103, examiners must make a *prima facie* case that there is

> some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings

(MPEP 2142).

In making the § 103 rejections, the Office makes two combinations in succession:

i) Burkhart with Ito/Kawanabe; and
ii) [Burkhart + Ito/Kawanabe] with Yamaguchi.

The motivation that an examiner gives for combining references does not have to be the same as the applicants'—any motivation will do, but that motivation must be shown to lead to a reasonably likelihood that the combination will succeed, and must be taught or suggested in the references, or be in the general knowledge of a person skilled in the art.

The Office's stated motivations to combine the teachings of the references are:

i) Ito/Kawanabe teach laminating a plurality of ceramic green sheets so as to incorporate the resistive heating element(s) into the finished susceptor and to incorporate (in the case of Ito) the "electrical connections" (conductor/lead circuits) that go to the power supply, so as "to provide a uniform heating surface"; and

ii) Yamaguchi shows electrodes in the center of a susceptor in an arrangement for "rout[ing] the lead circuits and corresponding electrodes" so as "to conveniently make electrical power connection to the heating elements."

i) Kawanabe does not teach any technological connection between the resistive heating element being incorporated into the susceptor by lamination, and heating temperature uniformity; Kawanabe only discusses the relationship

between thermal conductivity of the susceptor material, and the resulting temperature uniformity when the susceptor is heating.

In paragraphs [0128] to [0133] and following, Ito clearly explains that the vertical position of the resistive heating element(s) relative to the heating face of the susceptor can result in a temperature distribution (that is, temperature unevenness), and therefore that the resistive heating element(s) must not be closer than 60% of the susceptor thickness to the heating face. Nevertheless, in discussing background art in paragraph [0018], Ito teaches away from electrical connections provided as discussed with reference to Fig. 11 in Ito, in which the conductor circuit 58 "is formed between a resistance heating element 52 and the bottom face 51b" of the susceptor (paragraph [0012]). Hence, Ito teaches away from providing susceptor electrical connections as claimed in the present application.

ii) Yamaguchi does disclose "[c]urrent-introducing terminals 5 and 6 . . . provided, for example, in a center of the substrate 2," (column 3, lines 33-34), and even though this configuration might, as the Office says, make electrical power connection to the resistive heating elements "convenient." Nevertheless, Yamaguchi does not teach a lead circuit formed on a surface "that is different from the surface on which [the] resistive heating element is formed," as recited in claims 1 and 15 of the present application.

Column 3, lines 41-45 of Yamaguchi state:

> One ends of the terminals 5 are connected to the upper planar resistance-heating element 3, and one ends of the terminals 6 connected to the heat-generating density increased portion 4A of the lower planar resistance-heating element 4.

Read in view of Fig. 1 in Yamaguchi, the above passage cannot be said to teach a lead circuit formed on a surface "that is different from the surface on which [the] resistive heating element is formed."

Hence, although "convenience" may be a motivation to dispose electrodes in the center of a susceptor as Yamaguchi discloses, that "convenience" is not, *prima facie*, a motivation to combine a [Burkhart + Ito/Kawanabe] device—as allegedly arriving at the resistive heating element and lead-circuit configuration of the present invention—with the electrode configuration taught by Yamguchi.

Accordingly, Applicant courteously urges that this application is in condition for allowance. Reconsideration and withdrawal of the rejections is requested. Favorable action by the Examiner at an early date is solicited.

Respectfully submitted,

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